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For: MULTIPART SEPARATOR PLATE FOR AN ELECTROCHEMICAL CELL

- 1        1. A multipart separator plate for a fuel cell comprising:
  - 2              a distributor plate for directing fluid flow;
  - 3              a frame surrounding said distributor plate;
  - 4              an impervious separator layer; and
  - 5              a seal layer between said separator layer and said distribution plate.
  
- 1        2. The multipart separator plate of claim 1 including an internal manifold in  
2        said frame, said separator layer and said seal layer for delivering fluid and removing fluid  
3        from said distributor plate.
  
- 1        3. The multipart separator plate of claim 1 in which said distributor plate  
2        directs fluid flow to the membrane electrode assembly of the fuel cell.
  
- 1        4. The multipart separator plate of claim 2 in which said internal manifold  
2        delivers and removes fuel gas and oxidant gas to the distributor plate.
  
- 1        5. The multipart separator plate of claim 2 in which distributor plate directs a  
2        coolant fluid flow and said internal manifold delivers to and removes from said distributor  
3        plate a coolant fluid.

1        6.      The multipart separator plate of claim 1 in which said frame is chemically  
2      stable in the presence of the fuel cell fuel gas and oxidant gas.

1        7.      The multipart separator plate of claim 1 in which said frame is thermally  
2      stable at fuel cell operating temperature.

1        8.      The multipart separator plate of claim 1 in which said frame includes a  
2      polymer.

1        9.      The multipart separator plate of claim 1 in which said frame includes a  
2      polycarbonate material.

1        10.     The multipart separator plate of claim 1 in which said frame includes a  
2      polyvinyl material.

1        11.     The multipart separator plate of claim 1 in which said frame includes a  
2      recess on its inner periphery for accommodating the periphery of the electrode of the  
3      membrane electrode assembly.

1        12.     The multipart separator plate of claim 1 in which said frame includes stops  
2      for directing the fluid flow in said distributor plate.

1        13.      The multipart separator plate of claim 1 in which said seal layer is  
2      electrically conductive.

1        14.      The multipart separator plate of claim 1 in which said seal layer is  
2      thermally and chemically stable.

1        15.      The multipart separator plate of claim 1 in which said seal layer includes a  
2      sheet of flexible graphite.

1        16.      The multipart separator plate of claim 15 in which said seal layer includes  
2      Union Carbide Grafoil®.

1        17.      The multipart separator plate of claim 1 in which said fuel gas includes  
2      hydrogen.

1        18.      The multipart separator plate of claim 1 in which said fuel gas includes  
2      methanol and reformatre.

1        19.      The multipart separator plate of claim 1 in which said separator layer  
2      includes a metal.

1        20.      The multipart separator plate of claim 1 in which said separator layer  
2      includes stainless steel.

1           21.       The multipart separator plate of claim 1 in which said distributor plate  
2     includes porous graphite.

1        22.      A multipart separator plate for a fuel cell comprising:  
2                          a distributor plate for presenting a fuel gas to the membrane  
3                          electrode assembly of a fuel cell;  
4                          a frame surrounding said distributor plate;  
5                          an impervious separator layer; and  
6                          a seal layer between said separator layer and said distributor plate.

1        23.      The multipart separator plate of claim 22 including an internal manifold in  
2        said frame, said separator layer and said seal layer for delivering fluid and removing fluid  
3        from said distributor plate.

1        24.      The multipart separator plate of claim 22 in which said frame is chemically  
2        stable in the presence of the fuel cell fuel gas and oxidant gas.

1        25.      The multipart separator plate of claim 22 in which said frame is thermally  
2        stable at fuel cell operating temperatures.

1        26.      The multipart separator plate of claim 22 in which said frame includes a  
2        polymer.

1        27.      The multipart separator plate of claim 22 in which said frame is a  
2        polycarbonate material.

1           28.       The multipart separator plate of claim 22 in which said frame is a polyvinyl  
2       material.

1           29.       The multipart separator plate of claim 22 in which said frame includes a  
2       recess on its inner periphery for accommodating the periphery of the electrode of the  
3       membrane electrode assembly.

1           30.       The multipart separator plate of claim 22 in which said frame includes stops  
2       for directing the fluid flow in said distributor plate.

1           31.       The multipart separator plate of claim 22 in which said seal layer is  
2       electrically conductive.

1           32.       The multipart separator plate of claim 22 in which said seal layer is  
2       thermally and chemically stable.

1           33.       The multipart separator plate of claim 22 in which said seal layer includes a  
2       sheet of flexible graphite.

1           34.       The multipart separator plate of claim 22 in which said seal layer includes  
2       Union Carbide Grafoil®.

1           35.       The multipart separator plate of claim 22 in which said fuel gas includes  
2       hydrogen.

1           36.       The multipart separator plate of claim 22 in which said fuel gas includes  
2       methanol.

1           37.       The multipart separator plate of claim 22 in which said separator layer  
2       includes a metal.

1           38.       The multipart separator plate of claim 22 in which said separator layer  
2       includes stainless steel.

1           39.       The multipart separator plate of claim 22 in which said distributor plate  
2       includes porous graphite.

1           40.       A multipart separator plate for an electrolyzer comprising:

2                          a distributor plate for presenting water to the membrane electrode

3       assembly of the electrolyzer;

4                          a frame surrounding said distributor plate;

5                          an impervious separator layer; and

6                          a seal layer between said separator layer and said distributor plate.